



*The Regional Biomass Energy Program (RBEP) promotes increased production and use of bioenergy resources, and helps advance the use of renewable biomass feedstocks and technologies. Historically, the RBEP leverages two nonfederal dollars for every federal dollar it administers.*

### Benefits of Biodiesel

- **Made from used cooking oil — an organic, sustainable resource**
- **Non-toxic to fragile marine life**
- **Produces exhaust that is 97% less carcinogenic than the exhaust produced by fossil-based diesel fuel**
- **Reduces waste going into landfills**
- **Creates new markets for renewable energy products**

*“The Sea Ranger II is designed to be friendly to the environment and to protect the natural resources the National Park Service is mandated to preserve. If you asked the American public how the National Parks Service should conduct business, I think they would approve of the direction we are heading.”*

Rhonda Brooks  
Chief of Transportation  
Channel Islands National Park



**U.S. Department of Energy  
Regional Biomass Energy Program**

[www.ott.doe.gov/rbep](http://www.ott.doe.gov/rbep)

## ANOTHER RBEP SUCCESS: Bringing “green machines” to national parks, part 4: biodiesel takes to the sea

### CHALLENGE

National Park Service employees working in fragile marine environments are faced with a difficult dilemma. In order to move among the resources they are mandated to protect, they have historically relied upon watercraft that burn fossil-based diesel fuel and release toxic substances into the air and water.



*Sunrise reveals the tranquil Pacific beauty of Channel Islands National Park. (Photos courtesy of the National Park Service.)*

### RBEP SOLUTION

The U.S. Department of Energy's Regional Biomass Energy Program funded efforts at Channel Islands National Park in California to explore the use of biodiesel fuel in the park's research and crew boats. The park consists of 249,354 acres, half of which are under the ocean, and include the islands of San Miguel, Santa Rosa, Santa Cruz, Anacapa, and Santa Barbara. Park personnel depend on boats daily when monitoring park resources, or transporting supplies and personnel as far as 60 miles offshore.

Of the 2,000 different types of plants and animals found



*The National Park Service is proud of the roles its biodiesel watercraft are playing in protecting our nation's precious marine resources.*

in the park, 145 are unique to the Channel Islands. Protecting these precious species is an extremely high priority for the National Park Service. Identifying and implementing cleaner alternative fuels for the park's active boat fleet was one obvious way Channel Islands National Park could work to achieve its conservation goals.

## Partners

U.S. Department of Energy  
Regional Biomass Energy Program

U.S. Department of the Interior  
National Park Service

Channel Islands National Park

Ventura County Air Resource Board

## Awards

2001 White House "Closing the Circle" Award

"Best of Ventura County" Award

## RESULTS

In the first phase of the project, Channel Islands National Park's 20-year-old, 56-foot research vessel Pacific Ranger was retrofitted to be a "greener" form of transportation. Hull and fuel system modifications were undertaken to allow the boat to run on biodiesel fuel made from 100% recycled cooking oil. In the first year of operation, the Pacific Ranger experienced no fuel-related problems and performed more efficiently than expected. Staff members anticipated that fuel efficiency for the biodiesel would be approximately 10% lower than with fossil-based diesel, but actual performance was better.

Based on their success with the Pacific Ranger, park officials decided to replace the park's retiring vessel, Sea Ranger, with the 58-foot, "green" Sea Ranger II. Delivered in August 2001, the boat was built with low-emission biodiesel-compatible engines, a biodiesel-compatible generator, non-toxic hull

paint, sustainably grown teak interior, recycled flooring, and components that rely on biodegradable, vegetable-based hydraulic and lubricating fluids. In addition, special bearings were used to eliminate discharge of oily bilge water into the ocean.

Future plans call for converting the remainder of Channel Islands National Park's boat fleet to biodiesel compatibility by the end of 2002. Park personnel also hope to convert all of the generators, vehicles, and equipment on Santa Rosa Island to run on biodiesel by the end of 2003, which would make Channel Islands National Park virtually petroleum-free.



*The environmentally friendly Sea Ranger II takes a brief rest from its duties.*

## BENEFITS

Using biodiesel as its primary boat, vehicle, and equipment fuel is helping Channel Islands National Park protect its natural resources, while at the same time reducing the National Park Service's reliance on imported fossil fuel sources.

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